

Indigenous Services Canada

Crown-Indigenous Relations
and Northern Affairs Canada

ISC FNIHB EPH

Drinking Water Advisories

CBWM and Water Operator Training November 19-21

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Drinking Water Advisories

- There are 3 types of Drinking Water Advisories (DWA) that may be put in place in a water supply:
 1. Boil Water Advisory (BWA)
 2. Do Not Consume (DNC)
 3. Do Not Use (DNU)



Drinking Water Advisories

- Guidelines for Canadian Drinking Water Quality (GCDWQ) contains 6 tables:

Table 1. Microbiological Parameters

Table 2. Chemical and Physical Parameters

Table 3. Radiological Parameters

Table 4. Guidance Documents

Table 5. Withdrawn Guidelines

Table 6. Guidelines and Guidance in Progress



Drinking Water Advisories

Table 4 Guidance Documents of the GCDWQ:

- Contains multiple guidance documents
 - *Issuing and rescinding boil water advisories in Canadian drinking water supplies (2015)*

Summarizes factors for consideration when responsible authorities issue or rescind boil water advisories. Provides trend information on reasons boil water advisories are issued in Canada.

- *Issuing and rescinding drinking water avoidance advisories in emergency situations (2009)*

Summarizes factors for consideration when responsible authorities issue or rescind drinking water avoidance advisories in emergency situations.



Drinking Water Advisories

Other Documents in Table 4:

- Chloral hydrate in drinking water (2008)
- Controlling corrosion in drinking water distribution systems (2009)
- Monitoring the Biological Stability of Drinking Water in Distribution Systems (2022)
- Natural organic matter in drinking water (NOM) (2020)
- Overview of the Microbiological Aspects of Drinking Water Quality (2021)
- Potassium from water softeners (2008)
- Temperature aspects of drinking water (2021)
- Use of Enterococci as an indicator in Canadian drinking water supplies (2020)
- Use of Quantitative Microbial Risk Assessment (QMRA) in Drinking Water (2019)
- Waterborne pathogens (2022)



Drinking Water Advisories

- EPHOs rely on the *Health Canada Drinking Water Program Manual, 1st Edition* and the *Guidelines for Canadian Drinking Water Quality* with associated guidance documents to make evidence-based decisions when making recommendations on the issuance of a DWA to a community
- AFNWA communities also must meet the AFNWA Drinking Water Regulatory Guidance and Compliance Standards – these Standard outline potential situations where DWAs may be issued



Drinking Water Advisories

- The decision to implement a DWA would be made in consultation with FNIHB CMS / REHM, ISC-RO, AFNWA, First Nation frontline staff, Band leadership, and consultants that may be working with the community
- EPHOs provide advice / recommendations to responsible authority (Chief and Council or AFNWA), it is their responsibility to review the recommendation and issue the DWA to the community



Drinking Water Advisories

- Once there is established justification to issue a DWA, the EPHO would notify stakeholders and issue recommendation to Council to initiate
- EPHO would work with operators, consultants, RO, CBWM to identify potential issues, rectify and plan follow up sampling
- Once the issue is rectified and it is verified (through sampling) that no public health risk exists the DWA would be rescinded or lifted by Council with the EPHOs recommendation



Drinking Water Advisories

- When a decision has been made to issue a DWA, communication with the public / consumers of the water supply is extremely important:
 - Quick notification
 - Clear and concise details (type of DWA, reason, timelines, etc)
 - Ongoing reminders, updates and resources



Drinking Water Advisories: Boil Water Advisories (BWA)

Most common type of DWA.

Boil Water Advisory (BWA): Issued when there is a known or potential microbiological issue that may affect public health. BWAs may be *Emergency* or *Precautionary* depending on type of risk.

Emergency – a situation where a known biological contaminant is present in the distribution system.

Precautionary – a situation where there may a biological contaminant present

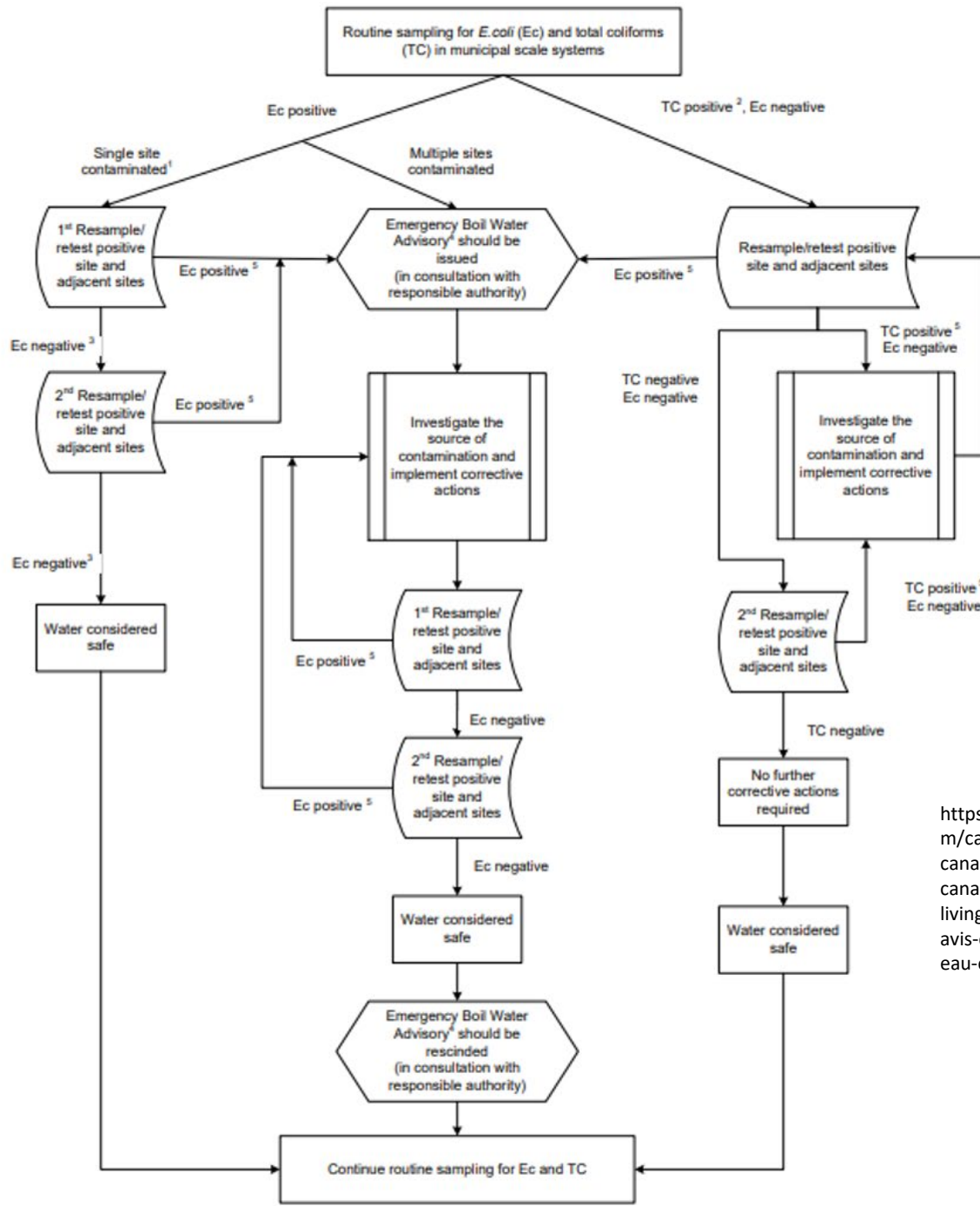
Potential triggers of BWAs include:

- E. coli presence (confirmed)
- Total coliform presence (repeated)
- No / Low chlorine residual
- Plant malfunction, operational concerns, disinfection failure
- Low pressure event
- Maintenance work which may impact water quality
- Water quality issue IE elevated turbidity
- Source water concerns

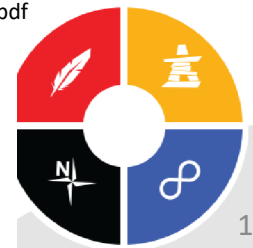


GCDWQ decision tree for issuing a BWA

The EPH Drinking Water Program Manual outlines a similar process to be followed



<https://www.canada.ca/content/dam/canada/health-canada/migration/healthy-canadians/publications/healthy-living-vie-saine/water-advisories-avis-eau/alt/water-advisories-avis-eau-eng.pdf>



Drinking Water Advisories: Boil Water Advisories

- BWA issued when known or suspected biological contamination is present
- Boiling the water for minimum **1 minute** will destroy potential contamination making it safe to drink
- Boiling water will not remove chemical contaminants.



Drinking Water Advisories: Boil Water Advisories

During a BWA water can not be used for any of the following purposes unless boiled first:

- drinking;
- preparing infant formulas;
- preparing juices and ice cubes;
- washing fruits and vegetables;
- cooking;
- dental hygiene;
- any other activity that may result in human consumption.



Drinking Water Advisories: Boil Water Advisories

BWA may be lifted once the concerns that led to issuance are corrected and

2 consecutive set of bacterial samples collected at least 24 hours apart are returned as acceptable.



Drinking Water Advisories

Do Not Consume (DNC)

Issue cannot be addressed by boiling the water.

Public health risk is associated with consumption of the water.

DNCs are issued in cases where the exposure to the contaminant is only of concern through ingestion, potentially rendering the water unsuitable for drinking or cooking purposes (drinking, preparing food, beverages, or ice cubes; washing fruits and vegetables; dishwashing; and personal hygiene, such as brushing teeth).

The water supply can be used for other domestic purposes, such as toilet flushing, cleaning and showering/bathing.



Drinking Water Advisories

Do Not Consume

- Typically associated with an exceedance of a GCDWQ Maximum Acceptable Concentration (MAC) of a chemical or physical analyte (Table 2) or radiological parameter (Table 3) (non-microorganism).
- EPHO / CBWM Operator would resample to verify initial result (possibly multiple samples of raw, treated and distribution samples)
- Depending on the issue or concern the recommendation could be system wide or targeted at individual points within the distribution system:
 - MAC exceedance of Manganese is typically a source water issue and effects the entire system
 - MAC exceedance of Lead is typically a sampling point issue (tap, building plumbing)



Drinking Water Advisories

Do Not Consume

- EPHO would work with operator, ISC-RO, FNIHB CMS, FNIHB Public Health Eng, AFNWA to identify issue and potential solutions
- The DWA-DNC would only be recommended to be lifted once there are assurances that the issue has been addressed and no public health risk is present
- There may be increased ongoing sampling completed to monitor the situation



Drinking Water Advisories: Do Not Use (DNU)

Issue cannot be addressed by boiling the water

Public health risk is associated with consumption, inhalation or skin/eye/nose exposure to the water

Water quality is so poor it cannot be used for any purpose (showering, handwashing) – usually with exception of toilet flushing and clothes washing



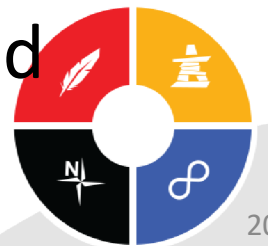
Drinking Water Advisories: Do Not Use

- Typically associated with an extremely high exceedance of a GCDWQ Maximum Acceptable Concentration (MAC) of a chemical / physical analyte (non-microorganism) or very poor physical quality (turbidity)
- EPHO, CBWM, Operator may resample to verify initial result (possibly multiple samples of raw, treated and distribution samples)
- Examples:
 - Extremely high levels of disinfection byproducts (consumption, inhalation risk)
 - Hazardous chemical spill



Drinking Water Advisories: Do Not Use

- EPHO would work with operator, ISC-RO, private consultants, FNIHB CME, FNIHB Public Health Eng, AFNWA to identify issue and potential solutions
- The DWA-DNU would only be recommended to be lifted once there are assurances that the issue has been addressed
- There may be increased sampling completed to monitor the situation after DWA is rescinded



Drinking Water Advisories:

- All DWA can be very difficult to deal with at the consumer level – mental, physical, financial strains
 - The average Canadian uses over 200L of water per day.
- Do Not Use and Do Not Consume can be very restrictive – what supports are required / available in these situations?
- Burden to businesses, industries



Thank you

Questions

